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memory of the late Lieutenant R. W. Poulton Palmer and his sister, the late Mrs. E. H. A. Walker, the object of which will be the investigation of obscure diseases in man.

A FIRE on the night of December 17 in the basement of Havermeyer Hall, the chemical laboratory of Columbia University, caused damage estimated at \$10,000.

DEAN EDWARD A. BIRGE has been elected president of the University of Wisconsin to succeed the late Charles R. Van Hise. Dean Birge will serve for two years, when he expects to retire at the age of seventy. He has been a member of the Wisconsin faculty in the department of zoology since 1875, and served as acting president of the university from 1900 to 1903.

DR. HAROLD C. CHAPIN, of the National Carbon Company in Cleveland, has accepted an associate professorship of chemistry at Lafayette College.

THE title of emeritus professor of experimental philosophy has been conferred upon Dr. E. H. Griffiths, F.R.S., on his retirement from the principalship of the University College of South Wales and Monmouthshire.

## DISCUSSION AND CORRESPONDENCE

### AGE FLOW AND EBB OF THE EOCENE SEAS

WE will agree with geologic writers from Wm. Smith's day to this that a typical geological cycle consists of a sequence of arenaceous, argillaceous and calcareous deposits, the strandline moving in as deposit-load increases; in place of littoral sands, clear-sea, calcareous matter eventually becomes dominant.

During the minor subdivisions of geologic time, the ages, for example, wherever continental shelves are very broad and near sea-level, slight changes of this datum plane may produce enormous strand-line shifting without bringing about extensive lime-forming conditions; clays will alternate with sand *ad infinitum*, characterized now by the life of the ocean's flood, now by swamp life during its ebb.

Our southern Eocene deposits seem to

record three such flood stages, separated by two ebb stages.

1. *The Midway Stage* is the oldest, the most generally *marine* with an expanse of gulf waters stretching from South Carolina through west Tennessee and perhaps southern Illinois, thence through Arkansas, southwest to and beyond the Rio Grande.

2. *The Sabine* records the first ebb tide condition over this same great area, a condition conducive to the growth of swamp vegetation, hence the *lignitic* condition of the strata as we see them to-day.

3. *The St. Maurice Stage* records the second notable and generally *marine* condition over much of this area, though extending less deeply into the Mississippi Embayment.

4. *The Claiborne Stage* appears to be, save in Alabama itself, a second great *lignitic* formation. Even at Claiborne, just above the Upper Landing, a road-cut shows the famous *marine* "sand bed" invaded by lignitic materials.

5. *The Jackson Stage* may well be looked upon as the last and in some ways the most remarkable of the *marine* accumulations. A quarter of a century ago we marked out a great transgression loop of this stage up into eastern Arkansas but there were then no known evidences of its occurrence in Texas. But the keen eyes of A. C. Veatch soon discovered such evidences in east Texas; others have made valuable contributions in the same direction, and it is quite likely that the *Ostrea contracta (georgiana)* beds on the Rio Grande are of this age. To the east, in Florida, Georgia and the Carolinas, Cook is doing yeoman's service in expanding our knowledge of this great terrane.

Our conclusions in tabular, condensed form appear thus:

Stage	Water Condition	Sediment
<i>Jackson</i>	<i>Flood</i>	<i>Marine</i>
<i>Claiborne</i>	<i>Ebb</i>	<i>Lignitic</i>
<i>St. Maurice</i>	<i>Flood</i>	<i>Marine</i>
<i>Sabine</i>	<i>Ebb</i>	<i>Lignitic</i>
<i>Midway</i>	<i>Flood</i>	<i>Marine</i>

The Potomac Basin seems to have been generally too deep to show similar responses in

character of deposition to slight changes of sea-level. Downwarped in Sabine times (in areas where now accessible) it remained flooded till into St. Maurice times without showing very rapid, or well-defined, sharp changes, faunal or lithological.

Vertebrate paleontology assures us that the holarctic waters have been somewhat drained off now and then during Tertiary times, else land areas have risen out of the seas, furnishing bridges for mammalian migration between the New and Old worlds. The correlation of holarctic with Gulf age tides is a fascinating problem for contemplation, if not for solution by present-day earth-science workers. Perhaps our co-workers on the West Coast may have arrived at some general conclusions regarding tide-level conditions there during the Eocene ages. These, it seems to the undersigned, might be of vast importance for working out the physical history of our Eocene series.

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#### HEREDITARY DEFICIENCIES IN THE SENSE OF SMELL

BLAKESLEE<sup>1</sup> has recently drawn attention to the fact that two individuals may exhibit marked degrees of sensitivity to the fragrance of verbenas. A given person, asked to judge between the blossoms of two plants, A and B, may declare the former fragrant but not the latter. From a second person we may get exactly the opposite response. To him B is fragrant but not A.

These differences which were found repeatedly and which seem to have been constant, suggest numerous interesting problems. They also serve to recall that practically nothing is known, or if known, at least not readily accessible to the general reader, on the heritability of differences in the sense of smell.

I have been asked on several occasions what might be expected from a mating involving a

normal person and one devoid of a sense of smell and, until asked the first time, I did not know that there are people who not only can not recognize the difference between odors, but can not recognize odors at all.

Not long ago, an instance of this sort fell into my hands and though the family history is fragmentary, it may possibly, when pieced in with other fragments, acquire some little value.

The case in point is that of a young Russian Jew, a fugitive from Kiev. This man, M. is quite unable to distinguish odors in the usual way. Alcohol, or anything with a sufficiently high percentage of alcohol, is simply "felt." The same thing is true of illuminating gas. Ether and chloroform, when very concentrated, "choke"; when dilute, they produce a "feeling" similar to that caused by flowers. The latter, also, he is aware of, but not in the ordinary way. They emit, very decidedly, "something delicate"; but this something is registered as "a gentle sensation like breathing balmy air." Pepper, again, has "no odor," but it is irritating and its application is followed by the usual effects.

The M. family, one characterized incidentally by much stammering; by an early and complete loss of the incisors; by frequent hernia; a thumb nearly twice the normal width; excessive sex interest; and, very considerable mental powers, contains several individuals abnormal in their sensitivity to odors.

Among the immediate sibs of M. himself, two sisters are normal in this respect. One brother exactly duplicates M. and another has some slight capacity in detecting odors. The mother of these sibs was unable to detect odors and her father, in turn, is reported to have been similarly deficient.

Off-hand there are certain resemblances here to sex-linked inheritance. It is necessary only to assume that the mother had the necessary double dosage in order to have a fairly typical case. Moreover the likelihood of this interpretation being correct is enhanced by a circumstance which to some may appear to cloud

<sup>1</sup> "Unlike Reactions of Different Individuals to Fragrance in Verbena Flowers," A. F. Blakeslee, *SCIENCE*, N. S., Vol. XLVIII., p. 298.